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DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

[Docket No. 200123-0028]

RTID 0648-XR079

Endangered and Threatened Species; Determination on the Designation of Critical Habitat for Chambered Nautilus

AGENCY: National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

ACTION: Notice.

SUMMARY: We, NMFS, have determined that a designation of critical habitat for the chambered nautilus (*Nautilus pompilius*) is not prudent at this time. Based on a comprehensive review of the best scientific data available, we find that there are no areas that meet the definition of critical habitat for the species; the species primarily occurs outside the jurisdiction of the United States, and areas within the jurisdiction of the United States provide no more than negligible conservation value, if any. Given the above circumstances, we have determined that a designation of critical habitat for this species is not prudent.

DATES: This finding is made on [*INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER*].

ADDRESSES: Electronic copies of the determination and the list of references are available from the NMFS Office of Protected Resources Web site at <https://www.fisheries.noaa.gov/species/chambered-nautilus>.

FOR FURTHER INFORMATION CONTACT: Maggie Miller, NMFS, Office of Protected Resources, (301) 427-8403.

SUPPLEMENTARY INFORMATION:

Background

On September 28, 2018, we published a final rule to list the chambered nautilus (*Nautilus pompilius*) as a threatened species under the Endangered Species Act (ESA) (83 FR 48976). Section 4(b)(6)(C) of the ESA requires the Secretary of Commerce (Secretary) to designate critical habitat concurrently with making a determination to list a species as threatened or endangered unless it is not determinable at that time, in which case the Secretary may extend the deadline for this designation by 1 year. At the time of listing, we concluded that critical habitat was not determinable because sufficient information was not available to: (1) identify the physical and biological features essential to conservation of the species, particularly given the uncertainty regarding habitat features necessary to support important life history needs and the irregularity and unpredictability of chambered nautilus within areas they are known to occur; (2) determine the specific geographical areas that contain the physical and biological features essential to conservation of the species; and (3) assess the impacts of the designation. In our final rule to list the chambered nautilus as threatened, we requested relevant information from the public on features and areas under U.S. jurisdiction that may meet the definition of critical habitat for the chambered nautilus but did not receive any responses to that solicitation. Subsequently, we continued to research, review, and compile the best available scientific data for use in the identification of critical habitat for the chambered nautilus. However, as discussed below, based on these data we find that:

(1) there are no identifiable physical or biological features that are essential to the conservation of the chambered nautilus within areas under U.S. jurisdiction and that may require special management measures or protections, or unoccupied areas under U.S. jurisdiction that are essential to the conservation of the species; and (2) the areas where the species occurs within the jurisdiction of the United States provide no more than negligible, if any, conservation value.

This finding describes the biology, distribution, and habitat use of the chambered nautilus and information and analyses to support the above determinations.

Chambered Nautilus Biology and Status

The following discussion of the life history and status of the chambered nautilus is based on the best scientific data available, including the *Endangered Species Act Status Review Report: Chambered Nautilus (Nautilus pompilius)* (Miller 2018).

The chambered nautilus (*Nautilus pompilius*) is an externally-shelled cephalopod with a distinctive coiled calcium-carbonate shell that is divided into chambers. The shell can range in color from white to orange, and even purple, with unique color patterns (Barord 2015). Its distinctive coiled shell is what makes the chambered nautilus a highly sought after commodity in international trade (Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) 2016). The body of the chambered nautilus is housed in the largest chamber within the shell, and when the animal is attacked, it can seal itself into this chamber, closing the opening with a large, fleshy hood (Jereb 2005). The chambered nautilus also has up to 90 tentacles, without suckers, which they use to dig in substrate, scavenge for food (Barord 2015), and to grab on to reef surfaces for rest (CITES 2016).

The chambered nautilus is found in tropical, coastal reef, deep-water habitats of the Indo-Pacific. It is generally found in association with steep-sloped forereefs with sandy, silty, or muddy-bottomed substrates. Physiologically, the chambered nautilus cannot tolerate temperatures above approximately 25° C or depths exceeding around 750–800 meters (m) (Ward *et al.* 1980; Carlson 2010) and is, therefore, found in depths ranging from around 100 m to 500 m (CITES 2016). They can travel distances of up to 6 kilometers (km) in a day facilitated by currents (Dunstan *et al.* 2011c). However, at the depths where these animals are generally active (>200 m), currents are weak and movements are primarily accomplished through self-propulsion, with observed *N. pompilius* distances of up to 3.2 km per day and maximum speeds of up to 1.18 km/hour for short periods of time (less than 6 hours) (Dunstan *et al.* 2011a). Given their slow speeds, and reliance on passive transport (like ocean currents) for any chance of a successful long-distance migration, nautiluses are rarely found in the open ocean or even mid-water due to risk of predation (Bonacum *et al.* 2011).

Chambered nautiluses are described as deep-sea scavenging generalists and opportunistic predators, using their tentacles to dig in the substrate and feed on a variety of organisms, including fish, crustaceans, echinoids, nematodes, cephalopods, other marine invertebrates, and detrital matter (Saunders and Ward 2010; Barord 2015). The chambered nautilus also has an acute sense of olfaction and can easily smell odors (such as prey) in turbulent waters from significant distances (of up to 10 m) (Basil *et al.* 2000).

The general life history characteristics of the chambered nautilus are that of a rare, long-lived (at least 20 years), late-maturing (10–17 years), and slow-growing marine invertebrate species, with likely low reproductive output. Circumferential growth rate for

the chambered nautilus is estimated to range from 0.053 mm/day to 0.23 mm/day and slows as the animal approaches maturity (Dunstan *et al.* 2010; Dunstan *et al.* 2011b). However, average size at maturity of *N. pompilius* appears to vary among regions.

Very little is known regarding nautilus reproduction in the wild. Observations of captive animals suggest that nautilus reproduce sexually and have multiple reproductive cycles over the course of their lifetime. Based on data from captive *N. belauensis* and *N. macromphalus* individuals, female nautilus may lay up to 10 to 20 eggs per year, which hatch after a lengthy embryonic period of around 10 to 12 months (Uchiyama and Tanabe 1999; Barord and Basil 2014; Carlson 2014). There is no larval phase, with juveniles hatching at sizes of 22 to 23 millimeters (mm) in diameter, and potentially migrating to deeper and cooler waters (Barord and Basil 2014). However, live hatchlings rarely have been observed in the wild.

As discussed in the proposed rule (82 FR 48948, October 23, 2017) and final rule (83 FR 48976, September 28, 2018) to list the chambered nautilus, the most significant threat to the species is overutilization through commercial harvest to meet the demand for the international nautilus shell trade. Chambered nautilus are specifically targeted for their shells, which have a distinctive coiled interior, and are sold as souvenirs to tourists and shell collectors and also used in jewelry and home décor items (where either the whole shell is sold as a decorative object or parts are used to create shell-inlay designs). Based on the available trade data, nautilus commodities are in high demand and nautilus products are globally traded, likely in the hundreds of thousands annually.

Fisheries for nautilus tend to follow a boom-bust cycle, with serial exploitation of nautilus populations leading to reductions of 70 to 97 percent in population abundances

and even extirpations of local chambered nautilus populations from waters comprising roughly three-quarters of the species' known range. The evidence of new *N. pompilius* fishing sites being established to supply both the legal and illegal trade, and poorly enforced domestic regulatory measures, coupled with the species' demographic risks (including small and isolated populations, low productivity, habitat specificity, and physiological limitations that restrict large-scale migration), significantly increase the species' vulnerability to depletion and make it likely to become an endangered species within the foreseeable future throughout its range.

Criteria for Critical Habitat Identification and Designation

Critical habitat is defined by section 3 of the ESA as: (i) the specific areas within the geographical area occupied by the species, at the time it is listed, on which are found those physical or biological features (I) essential to the conservation of the species and (II) which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed upon a determination by the Secretary that such areas are essential for the conservation of the species. Our regulations at 50 CFR 424.12(a)(1) provide circumstances where the Secretary may determine that a designation would not be prudent. These include if: 1) the species is threatened by taking or other human activity and identification of critical habitat can be expected to increase the degree of such threat to the species; 2) the present or threatened destruction, modification, or curtailment of a species' habitat or range is not a threat to the species, or threats to the species' habitat stem solely from causes that cannot be addressed through management actions resulting from consultations under section 7(a)(2) of the Act; 3) areas within the jurisdiction of the United States provide no

more than negligible conservation value, if any, for a species occurring primarily outside the jurisdiction of the United States; 4) no areas meet the definition of critical habitat; or 5) the Secretary otherwise determines that designation of critical habitat would not be prudent based on the best scientific data available. We have determined that two of the circumstances noted above apply to the chambered nautilus: (1) there are no areas that meet the definition of critical habitat; and (2) the species occurs primarily outside of U.S. jurisdiction in the Indo-Pacific, and the area where it is found within U.S. waters (*i.e.*, American Samoa) provides no more than negligible conservation value for the species, if any. An explanation of these determinations follows.

No areas meet the definition of critical habitat

Critical habitat under the ESA consists of specific areas upon which are found those physical or biological features essential to the conservation of the species and that may require special management considerations or protection. The ESA does not specifically define physical or biological features. However, court decisions and joint NMFS-U.S. Fish and Wildlife Service regulations at 50 CFR 424.02 provide guidance on how physical or biological features are expressed. Specifically, these regulations state that the physical and biological features are those that occur in specific areas and that are essential to support the life-history needs of the species, including but not limited to, water characteristics, soil type, geological features, sites, prey, vegetation, symbiotic species, or other features. A feature may be a single habitat characteristic, or a more complex combination of habitat characteristics. Features may include habitat characteristics that support ephemeral or dynamic habitat conditions. Features may also be expressed in terms relating to principles of conservation biology, such as patch size,

distribution distances, and connectivity (50 CFR 424.02). Furthermore, section 3 of the ESA (16 U.S.C. 1532(3)) defines the terms “conserve,” “conserving,” and “conservation” to mean to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary. For the chambered nautilus, we consider conservation to include the use of all methods and procedures necessary to bring the chambered nautilus to the point at which factors related to population ecology and vital rates indicate that the species is recovered in accordance with the definition of recovery in 50 CFR 402.02. Important factors related to population ecology and vital rates include population size and trends, range, distribution, age structure, gender ratios, age-specific survival, age-specific reproduction, and lifetime reproductive success.

As stated above, very little is known about the biology and ecology of chambered nautilus. They are found in deep-water habitats of the Indo-Pacific, occurring on steep coral reef drop-offs of fringing reefs, barrier reefs, and atolls (Dunstan *et al.* 2011c; CITES 2016). Their habitat is constrained by depth (with shell implosion around 800 m) and temperature (<25°C). However, the features of the habitat, and the vertical distribution of the species, vary depending on the type of geological structure. For example, in Osprey Reef, an oceanic seamount in Australia, nautilus catch rate was highest below a steep rocky reef wall, along a gradually sloping silty substrate at 300–450 m depths (Dunstan *et al.* 2011b). Trapping studies conducted in Fiji showed highest catch rates below the steep barrier reef wall, around 300 m depths, on muddy substrate (Dunstan *et al.* 2011c). In Tanon Strait, Philippines, constant catch rates were observed on a shallower muddy-silty bottom slope from 61–320 m depths, that connected a wide

intertidal flat with a gently sloping floor comprised of dark gray silt (at 400–500 m depths) (Haven 1977).

In general, many of the locations where nautilus have been found (including Fiji, Philippines, Australia, and American Samoa) tend to share similar depth profiles—step drop-offs on the fore-reef slope that reach bottom depths within around 2 km (Dunstan *et al.* 2011c). However, while some of these locations contain large, extensive fore reef slopes adjacent to sources of land-based vegetation that create nutrient-rich mud and silt substrates on the slopes (*e.g.*, Philippines, Indonesia), others may have much smaller (*e.g.*, American Samoa) and/or steeper fore reef slopes that lack organic-rich benthic muds (*e.g.*, Osprey Reef) (Ward *et al.* 2016). Underwater footage of nautilus from Baited Remote Underwater Video Systems (BRUVS) also reveal a range of habitat types, from rocky, reef slopes to expansive sandy sea floors with few to no rocks or other distinguishing features (Barord 2015). Overall, the general habitat features of areas where nautilus occur vary greatly by location and depends, in part, on the type of geologic structure that serves as the basis for the habitat—ranging from small, isolated seamounts to larger islands with steep reef drop-offs, wide outer barrier reefs, and gently sloping deep channels and straits (Dunstan *et al.* 2011c). However, not all areas that contain the above features (*e.g.*, reefs with step drop-offs, steep slopes, and silty or muddy bottoms) are habitat to nautilus (CITES 2016). In fact, the distribution of chambered nautilus is sporadic and unpredictable throughout their range and also within their immediate area of occupancy (CITES 2016). Given our current limited understanding of nautilus habitat needs and requirements, the available information only provides a general description of habitat types where nautilus occur and does not allow us to identify any potential

features that are essential to the conservation of the species.

In terms of supporting important life history functions, the available information does not indicate any physical or biological features that are essential for the reproduction or growth of the species. Neither mating nor egg laying has been observed in the wild for *N. pompilius*. Recently, Barord *et al.* (2019) documented potential mating behavior in *N. belauensis* in Palau based on observations of mating from previous laboratory and aquarium studies. Captured on video using BRUVS, the authors observed that mating tends to be a secondary behavior to the primary activity of feeding on the bait source (Barord *et al.* 2019). While the authors acknowledge that these behaviors may not have occurred without the attraction of the BRUVS, they also suggest that similar types of events (*e.g.*, occurrences of large, decaying prey items on the sea floor) may likely be what attracts nautilus to common locations to feed and potentially mate (Barord *et al.* 2019). No physical or biological features of the habitat, apart from the artificially-placed bait, were identified as supporting this mating or foraging behavior. Furthermore, there have been no observations of egg laying in wild nautilus populations (Dunstan *et al.* 2011b). As such, habitat features, such as substrate requirements for egg deposition by nautilus, or habitat conditions necessary for successful egg development or hatching in the wild, are presently unknown.

In terms of juvenile habitat and habitat necessary to support growth, nautilus trapping and telemetry studies have shown no difference in vertical movement behavior or depth distribution within a particular location between immature, sub-adult, or adult individuals, indicating that there is likely no partitioning of habitat between juveniles and adults of the species (Dunstan *et al.* 2011c). While nautilus depth distribution does vary

between locations (based on where catch rates are highest), Dunstan *et al.* (2011c) hypothesizes that this is likely driven by where the silty or muddy optimal feeding substrate can be found within that location for the nautilus. As mentioned previously, nautiluses are scavengers and, thus, are opportunistic feeders that forage on decaying prey items that have fallen to the sea bottom. While these prey items may be more easily accessible and locatable on sandy or muddy bottoms, the available information does not indicate that the presence of these types of substrate are essential for foraging purposes. Nor are there any specific habitat characteristics that appear to be intimately tied with feeding behavior. Also, as is typical of a scavenger, there does not appear to be a specific prey species that is required to be present in the nautilus habitat for successful foraging to occur. As such, we are unable to identify any particular physical or biological features of areas that serve as juvenile habitat or facilitate successful foraging and growth.

Additionally, the general habitat characteristics described above are based on areas where nautiluses have been lured through baited traps (*e.g.*, BRUVS). As such, the available information may not provide a complete picture of the habitat used by the chambered nautilus as we do not have a thorough understanding of where they go when they are not being lured by the scent of prey. As Barord (2015) remarks, further research is required in order to identify the preferred habitat type and species of prey of the nautilus, as well as to determine habitat features that may be associated with optimal foraging locations, egg deposition sites, or predator protection for the species. At this time, the available data do not indicate any physical or biological features of nautilus habitat that are essential for the conservation of the species, and, therefore, we cannot identify any areas that meet the definition of critical habitat.

Species occurs primarily outside U.S. jurisdiction, and areas within U.S. jurisdiction provide no more than negligible conservation value, if any

The known range of the chambered nautilus includes waters off Australia, Fiji, India, Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands, Vanuatu, and American Samoa, and it may also potentially occur in waters off China, Myanmar, Western Samoa, Thailand, and Vietnam (CITES 2016). Hence, the waters of American Samoa comprise only a very small portion of the known range of the chambered nautilus, which falls predominantly outside of U.S. jurisdiction.

Additionally, there is no information to suggest that the waters of American Samoa provide any more than negligible conservation value to the species. The species was not even known to occur in these waters until researchers discovered them in 1986 (Saunders *et al.* 1989). Prior to this, Saunders *et al.* (1989) report that there was no local knowledge of the living animal or its shells in American Samoa, and no word for “nautilus” in Samoan. The absence of drift shells and local awareness of the species suggests the population that occurs in these waters is likely very small. Barord *et al.* (2014) later confirmed this through use of BRUVS, photographing 22 nautilus over 4 days, and estimating a population abundance at Taema Bank (American Samoa; 14°19' 19.57" S, 170°38' 57.78" W) of 0.16 individuals/km². The authors used average speed of the nautilus multiplied by video length to determine maximum distance traveled and calculate sampling area. The authors also note that the population measure may, in fact, be an overestimate, given the nautilus' acute sense of olfaction and ability to locate food across significant distances as well as their depth-limited habitat (Barord *et al.* 2014). This population is significantly smaller than other non-fished populations

elsewhere throughout the species' range that have higher estimated population abundances, including Osprey Reef, Australia (13.6–77.4 individuals/km²; Dunstan *et al.* 2011a, Barord *et al.* 2014), the Great Barrier Reef, Australia (0.34–67 individuals/km²; Combosch *et al.* 2017, Barord *et al.* 2014) and Beqa Passage, Fiji (0.21 individuals/km²; Barord *et al.* 2014). Additionally, Combosch *et al.* (2017) estimated rather large effective population sizes for nautilus in the Indo-Pacific population (4.5×10^6 specimens; 3.2×10^6 for the Philippines subpopulation) and in the Coral Sea (7.2×10^6 for the Great Barrier Reef and 5.7×10^6 for Papua New Guinea) compared to the South Pacific, with the American Samoan population, together with the Fiji population, at 0.41×10^6 specimens.

Within American Samoan waters, the species has only been captured from one location, Taema Bank. This area appears to comprise the easternmost extent of the range of the species. However, it is likely to contribute only negligible conservation value. As noted above, the available data do not indicate any physical or biological features or areas that are essential for the conservation of the species. Taema Bank makes up only a very small fraction of the entire range of the species and is located at the fringe of the species' distribution range. It contains habitat for a likely genetically and reproductively-isolated population of chambered nautilus (Saunders 2010; Bonacum *et al.* 2011; Ward *et al.* 2016; Combosch *et al.* 2017). Given its isolation, both in terms of spatial structure and reproduction, the existence of this population may protect the species from total extinction (to an extent). However, the area, itself, is not considered essential for the conservation of the species. As stated previously, we consider conservation to include the use of all methods and procedures necessary to bring the chambered nautilus to the point

at which factors related to population ecology and vital rates indicate that the species is recovered in accordance with the definition of recovery in 50 CFR 402.02. The value of conserving this very limited habitat would be negligible as this population of *N. pompilius* would be unable to help colonize other areas in the event of catastrophic events or extirpations. There are no data to indicate that this habitat provides any connectivity to other potentially important habitat areas for the chambered nautilus. In fact, deep, largely unpassable waters for the chambered nautilus separate Taema Bank from Fiji and Vanuatu, the next closest locations where nautilus are known to occur in the South Pacific. As such, it is unlikely that this habitat would provide much conservation value for other populations of nautilus (outside of American Samoan waters) as they would be unable to easily access it.

Additionally, there are no data to suggest that the American Samoan population is biologically significant to the taxon as a whole. As stated before, this population is likely reproductively isolated. There are no data to suggest this population is acting as part of any source-sink population dynamics and thus affecting the species' abundance or broader distribution. There is also no evidence to indicate the population exhibits unique adaptations that could protect against changes in environmental conditions, with the exception of shell size and shell coloration (Ward *et al.* 2016), the importance of which is unknown at this point. Furthermore, Combosch *et al.* (2017) suggests this population may not even be *N. pompilius* but a new species of nautilus, which would preclude this area from designation.

In summary, based on the above information, we find that the species occurs primarily outside of U.S. jurisdiction, and the habitat at Taemea Bank, in American

Samoaan waters, is not essential for the recovery of the species. In fact, a designation of critical habitat at Taema Bank would provide no more than negligible conservation value for the species because there are no data to suggest the habitat within American Samoa would provide any more than a negligible impact in bringing the chambered nautilus to the point at which factors related to population ecology and vital rates would indicate that the species is recovered throughout its range.

Unoccupied Areas

Section 3(5)(A)(ii) of the ESA defines critical habitat to include specific areas outside the geographical area occupied by a threatened or endangered species at the time it is listed, if the areas are determined by the Secretary to be essential for the conservation of the species. Regulations at 50 CFR 424.12(b)(2) specify that we will designate as critical habitat specific areas outside the geographical area presently occupied by a species only upon a determination that such areas are essential for the conservation of the species. For an unoccupied area to be considered essential, we must determine that there is a reasonable certainty both that the area will contribute to the conservation of the species and that the area contains one or more of those physical or biological features essential to the conservation of the species. Our regulations at 50 CFR 424.12(g) also state that critical habitat will not be designated within foreign countries or in other areas outside of U.S. jurisdiction.

Because we are unable to identify any physical or biological features of nautilus habitat that are essential to the conservation of the species, we cannot identify any unoccupied habitat that contains such features. Furthermore, due to the limited understanding of habitat use by the chambered nautilus, we cannot identify any

unoccupied areas that have a reasonable certainty of contributing to the conservation of the species or are essential to the conservation of the species.

Critical Habitat Determination

Given the best available information and the above analysis of this information, we find that there are no identifiable occupied areas under the jurisdiction of the United States that contain physical or biological features that are essential to the conservation of the species or unoccupied areas that are essential to the conservation of the species.

Therefore, we conclude that there are no specific areas within the chambered nautilus' range and under U.S. jurisdiction that meet the definition of critical habitat. Additionally, we have determined that the chambered nautilus occurs primarily outside the jurisdiction of the United States, and the areas within the jurisdiction of the United States provide no more than negligible conservation value, if any. Based on the above circumstances, per 50 CFR 424.12(a)(1), we conclude that a designation of critical habitat is not prudent.

Although we have made this "not prudent" determination, the areas occupied by chambered nautilus under U.S. jurisdiction will continue to be subject to conservation actions implemented under section 7(a)(1) of the ESA, as well as consultation pursuant to section 7(a)(2) of the ESA for Federal activities that may affect the chambered nautilus, as determined on the basis of the best available information at the time of the action. Through the consultation process, we will continue to assess effects of Federal actions on the species and its habitat.

Additionally, we remain committed to promoting the recovery of the chambered nautilus through both domestic and international efforts. As noted in the proposed and final rules (82 FR 48948, October 23, 2017; 83 FR 48976, September 28, 2018,

respectively), the most significant threat to the chambered nautilus is overutilization through commercial harvest to meet the demand for the international nautilus shell trade. The international nautilus shell trade has led to the serial depletion and extirpation of local nautilus populations and has been largely unregulated, particularly in Indonesia, Philippines, and China, despite some prohibitions. However, in October 2016, the member nations to CITES, including the United States, agreed to add all nautilus species to Appendix II of CITES (effective January 2017). This listing means increased protection for the chambered nautilus and other nautilus species, but still allows legal and sustainable trade. Export of nautilus products now requires CITES permits or re-export certificates that ensure the products were legally acquired and that the Scientific Authority of the State of export has advised that such export will not be detrimental to the survival of that species in the wild.

We continue to evaluate the effectiveness of the CITES Appendix II listing of the chambered nautilus to determine whether there is a need for additional protective measures for the species. For example, we have preliminarily reviewed the information in the CITES Trade Database (<https://trade.cites.org/>) for the years since the nautilus listing went into effect. The CITES trade database shows that the United States imported 11,322 nautilus shells from the Philippines and 372 jewelry products containing nautilus shells from various countries (Mexico, Indonesia, and the Philippines) in 2017. In 2018, there were no reported imports of nautilus products into the United States and only trade in pre-convention specimens occurred. We will continue to monitor the CITES trade database as we evaluate the effectiveness of the CITES Appendix II listing.

Additionally, the CITES Review of Significant Trade (defined in Resolution

Conf. 12.8 (Rev. CoP13)) was designed to identify species that may be subject to unsustainable levels of international trade, and to identify problems and solutions concerning effective implementation of the Convention. As of October 2019, the chambered nautilus has not been identified by CITES as a species that may be subject to unsustainable levels of international trade (<http://sigtrade.unep-wcmc.org/>).

We will continue to work towards the conservation and recovery of the chambered nautilus, both on a domestic and global level, including with our international partners. Specifically, we will work with the U.S. Fish and Wildlife Service to continue to monitor the CITES import and export requirements; evaluate CITES implementation for sustainable trade in the chambered nautilus; and monitor the status of the species to ensure that the chambered nautilus is conserved and can eventually be delisted from the ESA.

References

A complete list of all references cited herein is available upon request (see **FOR FURTHER INFORMATION CONTACT**).

Authority

The authority for this action is the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Dated: January 23, 2020.

Samuel D. Rauch III,

Deputy Assistant Administrator for Regulatory Programs,

National Marine Fisheries Service.

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